

FINANCIAL REPORTING ON THE INTERNET AND THE PRACTICE OF CROATIAN JOINT STOCK COMPANIES QUOTED ON THE STOCK EXCHANGES

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Abstract

In the last ten years, the Internet and applications of it have been increasingly widely employed in modern business operations. In developed countries, the Internet is used with increasing frequency for financial reporting. And accordingly a large amount of academic research has been done into the area. Since no such research has yet been carried out in Croatia, it is a research area that is undoubtedly of interest. This investigation was carried out on a basic sample of 38 joint stock companies quoted on Croatian bourses, the shares of all of them being actively traded. The results showed that twenty of the companies made use of Internet financial reporting and eighteen had no such practice. Companies that use Internet financial reporting on the whole publish the annual reports together with the reports of their auditors. In addition, most of the companies use the PDF format for the reports that they publish. Empirical data show that the firms that use Internet financial reporting are on the whole larger and more profitable, and that their shares are more active on the bourses than the shares of companies that have no such reporting practice. Also established was a statistically significant propensity among financial institutions to use Internet reporting. Joint stock companies in the tourist sector were shown not to have a propensity for Internet financial reporting. Bearing in mind the expected growth of GDP, the growth of the capital market, with the constant growth in the number of Internet users, investment in financial reporting on the Internet could be a useful decision for joint stock companies that wish to enhance the transparency of their operations.

Key words: financial reporting, joint stock companies, Internet, Croatia

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1 Introduction¹

In the last ten years or so modern business operations have been increasingly characterised by greater involvement of the Internet. Today, numerous Internet applications are successfully employed in business, such as e-commerce, Internet banking and advertising. However, the Internet can also be utilised for the enhancement of the transparency of the operations of joint stock companies via the provision of useful financial and non-financial information to investors and other users. Such a practice has been known for some time already in developed market economy countries, where it is useful for corporations to use the Internet for their financial reports, as has been borne out by academic research. Since no scientific investigation of any scope has yet been carried out into financial reporting on the Internet, the area clearly makes possible a certain contribution to accounting research in Croatia. With respect to the research topic selected here, the following objectives stand out: the ascertainment of the level of practice reached of those Croatian corporations that are quoted on the bourses a propos Internet financial reporting and analysis of the factors that could possibly impact a decision concerning Internet financial reporting.²

In the ascertainment of the practice of those Croatian corporations that are quoted on the stock exchanges, special attention should be devoted to the extent, frequency and formats of the financial reports published. These are the features that are most frequently analysed in the available empirical studies from other countries, and it is thus useful to be able to compare the level of Croatian corporations with that of the practice of corporations from developed countries (from, e.g., the USA, UK, Austria, Ireland and Sweden). As well as financial reporting practice, it would be interesting to analyse the characteristics of the companies that use this form of reporting, and to determine whether size, profitability or the given industry have any connections with the decision to publish or not to publish financial reports on the Internet.

2 Financial reporting and the Internet in the modern business environment

2.1 The frameworks of financial reporting and the most recent trends

According to the modern framework, the objective of financial reporting is to supply useful information to stakeholders. Thus, for example, the American FASB in its conceptual outline states that financial reporting should provide information useful to investors, creditors and other users (Kieso and Weygandt, 1986).³ The International Accounting Standards Board has a similar framework; this is the institution that develops International Accounting Standards / International Financial Reporting Standards, applied throughout the world, and in use in Croatia since 1993.⁴ Financial reporting as

¹ The author would like to thank the anonymous reviewers for their constructive recommendations.

² The term bourse, in this research, is intended to mean an organised capital market

³ The Financial Accounting Standards Board (FASB is an independent institution in the private sector and finances the Financial Accounting Foundation (FAF). FASB develops accounting standards under the name of SFAS, which are applied in the US and were used in some European countries.

⁴ IASB is the operative body for the adoption of the standards of the International Accounting Standards Committee Foundation (IASCF), a non-profit institution founded in 1973 and reorganized in 2001.

understood in this paper implies the creation and presentation of accounting information useful to stakeholders. Accounting information is contained in financial reports; for example, IAS 1- Presentation of Financial Reports, defines the set and basic structure of the financial reports for companies that use IASB standards (IASB, 2000).⁵ Apart from by the conceptual frameworks of the IASB or the FASB, financial reporting can also be governed by additional regulations. For example, in Croatia, as well as the accounting standards of the IASB, there are a number of laws and Regulations that govern the entire framework of financial reporting for various purposes and users. Thus the framework of financial reporting in the broader senses means all the rules and laws that regulate financial reporting.

As individual countries have developed differently, so variations in the frameworks of financial reporting of the countries have come into being. American authors Mueller, Gernon and Meek (1994), analysing the differences in the context of financial reporting at the end of the 20th century, distinguish four models, the most important of which are the Anglo-American and the Continental European. Although the differences between Anglo-American and Continental European models of financial reporting can be considered important even today, because of the process of the harmonisation of accounting they will in the future tend increasingly to diminish. By harmonisation of accounting one implies the increase in the compatibility of accounting practices by the definition of the borders up to which they can vary (Nobes and Parker, 1998).

For the current age is characterised by the globalisation of economies and the increasingly liberal flows of people, goods, capital and information. In such a business environment, financial reporting takes on a new dimension, and is gradually become the language of global business. The FASB and IASB are hard at work harmonising standards as part of a project on the convergence of accounting standards. An essential role in the harmonisation of accounting in Europe is played by the EU. An advance towards the harmonisation of accounting was made by the EU Council of Ministers in 2002, when it made a decision according to which all joint stock companies the shares of which are traded on the capital markets in the EU must from 2005 onwards apply the IASB accounting standards (EU, 2004). A decision of this nature will certainly contribute to greater operational transparency, easier financial analysis and the faster and cheaper making of investment decisions.

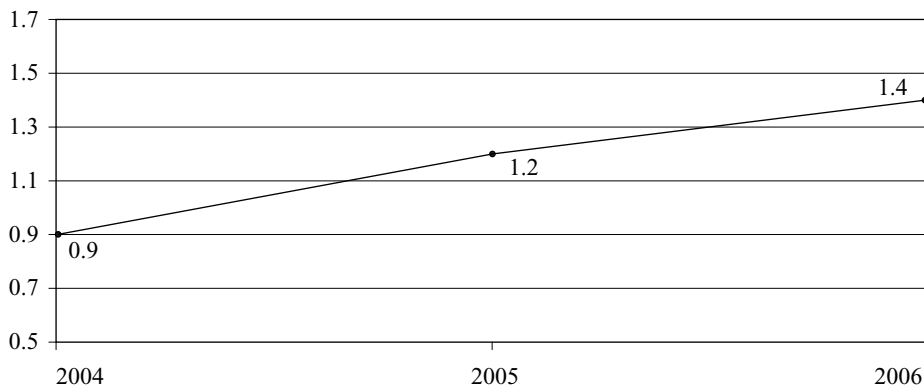
2.2 The Internet and the application of it in modern business operations

The year 1969 is usually stated as the year in which the Internet was developed. At that time, a national computer net called ARPANET was developed in the USA. Now the Internet links millions of computers and people all over the world. Today it includes numerous applications such as the Web, email, chat and remote exchange of data (FTP, File Transfer Protocol). Of all these applications, perhaps the Web is the best known; introduced in 1992, it has recorded a vast growth in the number of users worldwide

⁵ The complete set of financial reports, according to IAS 1, includes the balance sheet, the profit and loss account, statements on changes in equity, cash flow statements, accounting policies and notes.

(O’Leary and O’Leary, 2002).⁶ Each day, more than a billion people worldwide use the Internet, enabling an efficacious use of numerous business applications. Hence there is no wonder that today one of the most rapidly-developing of Internet applications is electronic commerce. With the use of their credit cards, consumers can buy books, clothing, shares and cars all from their own homes. The use of the Internet is growing all around the world, as it is in Croatia as well. From data published during the elaboration of the Internet Development Strategy in Croatia it appears that at the end of 2003 about 18% of the population of Croatia (650,000) used the Internet (Kos and Bažant, 2003). This proportion is still fairly low as compared with other European countries, and there is certainly great room for increasing the number of users⁷. According to IDC (International Data Corporation) forecasts, the number of Internet users in Croatia should rise continuously, as shown in Figure 1.

Figure 1 Forecast of the number of Internet users in Croatia up to 2006 (in millions)



Source: Kos and Bažant (2003:17)

According to the data contained in Fig. 1, it would appear that there should be more than 1.4 million Internet users in Croatia in 2006, making up about 30% of the population. According to data from new research, forecasts about the number of Internet users in Croatia for 2004 have been revised. According to IDC Croatia research (2004), it was predicted that in this country at the end of 2004 there would be about 1.2 million Internet users, constituting about 27.5% of the overall population (IDC Hrvatska, 2004).⁸

In this context it is realistic to expect a growth in all Internet-based business applications as well. For this research, however, the Internet is primarily looked upon as a means of communication that enables the presentation and finding of financial reports

⁶ Before the Web, the Internet had only text features, without graphics, animations or video files.

⁷ For the purpose of comparison, at the end of 2003, the percentages of Internet users in the UK, Slovenia, Italy and Slovenia were, respectively, 40, 37, 30 and 29 (Kos and Bažant, 2003).

⁸ See URL: www.idccroatia.hr

and other useful information. Corporations may, if they want, publish their financial reports on the Internet and thus make them easily accessible to a large number of users, not in Croatia alone, but all around the world. If the financial reports are Internet-published, users can find them fairly simply and rapidly if they know the URL. But even if they do not know the exact address, they can search for the financial reports that interest them with the help of various Internet search engines.⁹

In developed market-economy countries, numerous specialised companies that provide financial services use the Internet and publish very detailed information about the firms that are quoted on the stock exchanges, including their financial reports.¹⁰ Such internet pages usually contain information about a large number of quoted firms, data about various kinds of securities, stock exchange data and publicly released price-sensitive information. The Internet sites of financial services providers usually have search engines that enable rapid search and retrieval of the desired security. After the security is found, important information will be provided to the user. Stock exchange data usually include the closing, the highest and the lowest prices, changes in price, volume of trading and historical price data. It is in addition possible to find recommendations about holding, buying or selling securities.

3 The framework for financial reporting for companies quoted on stock exchanges in Croatia

In 1992 Croatia saw the passing and publication of the Accounting Law (NN 90/92), which has been enforced since 1993. It should be pointed out that this law prescribes the minimal items on the balance sheet and the profit and loss account, based on the EU 4th Directive. According to the existing regulations, also belonging to the set of basic financial reports, apart from the balance sheet and the profit and loss account, are the changes in equity statement, the cash flow statement, the accounting policy and the notes (Belak, 2002). Croatia did not decide on the development of national accounting standards; instead, the country prescribes the use of the IASB standards. Joint stock companies that are quoted on stock exchanges must apply IASB standards, as must all other companies after these have been translated and published in the NN. Not only is the framework of financial reporting ordered in this way, but according to the Accounting Law there is a parallel framework for financial reporting. This framework derives from the statutory obligations of companies to various state institutions such as the Tax Administration (NN 54/01), the Financial Agency or FINA (NN 47/03), the Central Bureau of Statistics (NN 103/03) and the Securities Commission (NN 84/02).

Only some companies have to supply their financial reports to the Securities and Exchange Commission, which in Croatia is charged with organising and controlling the capital market¹¹. If a company issues shares, it is bound to present to the Commission its basic and consolidated financial reports for the previous three years, and for the last

⁹ Examples of such search engines are Google, Alta Vista and WebCrawler.

¹⁰ Examples of such firms are Moneycentral.msn.com, finance.yahoo.com or BigCharts.com.

¹¹ URL: www.crosec.hr

quarter of the current year. These rules hold for first section quotations and for the quotation of public joint stock companies on the bourses (in Zagreb and Varaždin).¹² The rules for other sections of the markets are set by each of the stock exchanges independently. Public joint stock companies must supply the Commission their balance sheet, profit and loss account, cash flow statement and changes in equity statement quarterly (NN 118/03). These reports have to be supplied in electronic format (.xls). As well as the basic financial reports, corporations have to supply other data, such as a list of subsidiaries, the amount of dividends paid out, the number of shares, the market price of shares, a list of the ten biggest shareholders, proof of solvency, data about mergers, cases before the courts and changes in accounting policy.

Although this is a substantial set of financial and non-financial information, one basic shortcoming is the failure to publish accounting policies, data about parts of business operations and any more major discussion of business operations and trends expected for the future. Thus the basic financial reports published in the public information booklet of the Securities Commission contain only the basic financial data, and hence the complete financial reports that joint stock companies publish in public are certainly more informative and more useful for investors. Thus we can conclude that corporations that are quoted on the bourses can (if they wish) present via the Internet higher quality and more extensive financial information to a wider circle of users than that which they present to the Securities Commission.

4 Previous research concerning financial reporting on the Internet

With the development of the Internet and the expansion of the use of it for financial reporting, there has been an increase in the number of academic investigations related to this area. The research available can be classified into the following three categories: research on the practical application of financial reporting on the Internet in individual countries; comparative research covering several countries; and research into the factors that affect financial reporting on the Internet. The first type of research is mainly of a descriptive character, in which analysis is made of the use of financial reporting on the Internet in a given country. Such investigations usually provide data about the percentage of corporations that use Internet financial reporting, the scope of the financial information published, and the format of the reports published.

As one such example, the research carried out in Sweden by Hedlin (1999) could be mentioned; this ascertained that most of the Swedish corporations that are quoted on the Stockholm stock exchange do use Internet financial reporting. Depending on the market segment, that is, this percentage ranges between 75 and 95%. However, it is also shown that the companies in the sample do not make use of all the benefits that the Internet provides, particularly not the possibilities for continued updating of data, the linking of documents and the format of data suitable for calculations (EXEL or ASCII). Similar research was carried out into quoted Spanish companies, in which it was shown that

¹² According to the Securities Market Law, a publicly quoted joint stock company is one that issues shares with a public offer or that has more than 100 shareholders and its equity comes to 30 million kuna.

only 19% of the companies in the sample presented any extensive financial information on the Internet (Growthorpe and Amat, 1999). Research done in Ireland in 1998 showed that 37% of quoted Irish companies published their financial reports on the Internet (Brennan and Hourigan, 1998).

The second approach to research endeavours to discover what differences there are in the financial reporting on the Internet of listed corporations from different countries. An example of such an investigation is the comparative research on the application of financial reporting on the Internet by American, British and German quoted firms of Deller, Strubnath and Webber, 1999. The investigation showed that 91% of American, 72% of British and 71% of German corporations practised Internet financial reporting. It was shown that only rarely in all three countries investigated was a format suitable for calculations used (7-13%).

In the third type of study, an endeavour is made to highlight the factors that impact the decisions of a corporation to publish or not publish financial data on the Internet. The study carried out by Pirchegger and Wagenhofer (1999) concerning Austrian and German quoted firms may be cited as one such study. The authors framed a set of criteria (for financial and for non-financial information) with which to evaluate the quality of Internet sites on a scale of 0 to 100. After the quality gradings were calculated for each company, the evaluations obtained were used in a regression analysis as the dependent variable. The independent variables used were the size of the company (measured in terms of earnings) and the percentage of shares freely traded on the stock exchange.

A statistically significant and positive correlation was revealed in 32 Austrian firms quoted on the Vienna stock exchange between Internet site quality and size, and the percentage of shares that are freely quoted. Similarly, it was shown in connection with the sample of German companies that are quoted on the stock exchange (the DAX 30 – the 30 biggest German corporations in terms of market capitalisation) that there was a positive correlation between internet site quality and size of company. However, a negative correlation between Internet site quality and percentage of shares freely traded on the stock exchange was also discovered. A similar investigation concerning British corporations that are quoted on the London stock exchange (the FTSE 100 or the 100 biggest British companies in terms of market capitalisation) was carried out by Craven and Marston (1999), who established a positive correlation between size of company and financial reporting on the Internet.

5 Results of research into financial reporting on the Internet in Croatia

5.1 A description of the basic set of the research

Since all the previous research referred to concerning financial reporting on the Internet was based on joint stock companies that are quoted on a stock exchange, the same approach was applied in the definition of the basic sample for the research in Croatia. Following this kind of approach, the investigation covers only those Croatian

corporations that list their shares on the Zagreb or the Varaždin bourse.¹³ The Zagreb bourse has today three segments of the share market: the first section (3 companies); the section of public joint stock companies (about 108 such companies); and the free market. In addition the Varaždin bourse has the following three segments: one company in the first section, about 121 companies in the public joint stock companies section, and the free market.

As compared with the developed free market companies, the capital markets in Croatia are fairly poorly developed. However, in comparison with transition countries, Croatia is in a better position. The ratio of market capitalisation and GDP can be quoted as one of the more common criteria for the degree of development of the capital market. Data concerning the development of capital markets according to this indicator for eight selected transition countries are shown in Table 1.

Table 1 Ratio of market capitalisation and GDP in some transition countries

Country	Market capitalisation / GDP in percentage (data for 2002)
Czech R	21.18
Slovenia	20.21
Hungary	17.45
Croatia	16.47
Poland	15.55
Romania	10.67
Slovakia	7.40
Bulgaria	4.23

Source: Deloitte Touche Tohmatus Emerging Markets (2000:29)

Table 1 puts Croatia behind the Czech Republic, Slovenia and Hungary in terms of capital market development, and in 2004 they all became EU members. However, Croatia is in front not only of Romania and Bulgaria, which are, like this country, still candidate countries, but also in front of Poland and Slovakia, already also EU members. Although on the Zagreb and Varaždin stock exchanges more than 230 joint stock companies are listed, there is only occasional and sporadic trading in most of these shares, or no trading at all, and many shares are insolvent. For an evaluation of the insolvency or solvency of listed shares at the Zagreb and Varaždin stock exchanges, the indicator “technical analysis evaluation” calculated and brought up to date every day by the Rast firm of brokers was employed. A propos active shares, there is real demand for financial reports and other financial and non-financial data, and hence it is easier separately to analyse the corporations from this segment of companies that are quoted on a stock exchange.

¹³ URL: www.zse.hr and www.vse.hr

5.2 Use of Internet technologies and formats of financial reports published

After a basic sample of 38 joint stock companies was defined, companies that are quoted on a stock exchange and that are actively traded, we looked up the Internet home-pages of each one of the companies in the sample. Most of them were easy to find by simply adding the domain .hr or .com onto the name of the company. When this did not work, we resorted to a search engine, in this case Google. This investigation established that all the thirty eight companies from the basic set did have their own Internet site and an email address. English versions were found for 31 of the firms, that is, for 82% of the basic set. For simpler searching, 10 of these companies have their own search engine as an integral part of their site.

It was most interesting to explore how many joint stock companies used the Internet as a resource for the publication of financial reports in public. From an analysis of the sites it became clear that there was no uniformity in the scope of the financial reports of the companies in the sample, and hence it was necessary define the criteria for assigning a firm to the category of firm that publishes its financial reports on the Internet. The author of this research used his own judgement to make the publication of at least two financial reports the criterion for classification into this group: the balance sheet and the profit and loss account. In addition to that, a joint stock company was classified a firm that used the Internet for financial reporting if it did not actually have a report on its own Internet page but if it did have a link on it taking the user to some other Internet page.

According to the criterion established, the research showed that only 20 joint stock companies (53%) used the Internet for the publication of their financial reports. It is important here to bear in mind the fact that the criterion for the classification of the companies was not the whole set of financial reports according to the financial reporting framework. The use of the whole set of financial reports as criterion for classification would have resulted in entirely different numbers and conclusions.

For the sake of a more detailed analysis of the scope and quality of financial reporting on the Internet, it was necessary to find out which kinds of financial reports the companies from the sample published on the Net. For if a company does resolve on publishing its financial reports on the Internet, it can then publish just a few reports or the entire set of them as prescribed by the existing legislation. With respect to the frequency of the publication of financial reports, there are also several possibilities. For example, companies can publish only the annual report or, if they wish, can inform the public more fully and frequently, publishing quarterly or half-yearly reports.

Table 2 Kinds of financial reports published on the Internet

Kind of financial report	Only a few annual reports	A set of five annual reports	Auditors' report	Half-yearly reports	Quarterly reports
Number of corporations	5	15	16	4	4
Percentage of basic set	13.1	39.4	42.1	10.5	10.5

From the data in the previous table we can see that only 15 companies (39%) publish financial reports together with the auditors' reports. Since the capital market is dynamic and sensitive to financial information, the publication of half-yearly and quarterly reports could also be of use to investors. However, only four companies (10.5%) from the basic set inform the public with that kind of frequency. An analysis of the Internet sites showed that only 15 companies (39%) showed financial reports from previous business years. It is known that not only financial information but various kinds of non-financial information have an influence on the price of shares, and thus it was interesting to see the practice of the companies from the sample *a propos* this matter. It was established that 18 companies (39%) did publish non-financial information about their operations; however there was a fair degree of diversity in the scope and detail of the information published. As well as financial and non-financial information, the actual price of the shares is important for investors; however, only five of the firms published such data on their Internet sites.

If a firm does decide to go in for Internet financial reporting, there are various technical opportunities and formats for the presentation of information. A company can publish its financial data in various forms, in HTML, PDF and XLS. The practice with respect to the matter of formats for the presentation of the reports is shown in Table 3.

Table 3 Formats of published financial reports

Formats of published financial reports	HTML	PDF	XLS
Number of companies	7	14	2
Percentage of basic group	18.4	36.8	5.2

Data from Table 3 show that 14 joint stock companies (37%) use the PDF format for the publication of financial reports, which is the most frequent practice in developed countries (Deller, Strubnrath and Webber, 1999). The basic advantage of the PDF format is that a hardcopy of the document will exactly reproduce that found on the Internet. However, XLS (or some other spreadsheet format suitable for calculations) is a very suitable format for the publication of data, because it enables direct calculation of various indicators and the use of numerous mathematical and statistical functions. The basic advantage of publishing financial reports in this format is the rapid and simple use of the data published in the user, because there is no need for copying out the data, which avoids user-created errors, saves time and additional costs. However, the XLS format is used by only two companies from the basic set.

5.3 Analysis of factors for using or not using Internet financial reporting

The objective of the research, in addition to establishing the practice of Croatian joint stock companies that are quoted on stock exchanges of publishing financial reports on the Internet, was to analyse factors that might perhaps have an impact on the decision to publish or not to publish financial reports on the Internet. Research efforts in other countries (Austria, Germany, UK) have revealed that financial report-

ing on the Internet may be correlated with several factors, particularly with the size of a company (Pirchegger and Wagenhofer, 1999; Craven and Marston, 1999). Larger companies usually have more current and potential shareholders, the interest in financial reports thus being greater. Accordingly, a positive correlation can be expected between company size and a decision in favour of Internet financial reporting.

Various indicators can be used to measure size of a company, such as assets, equity, revenue or number of employees. In line with the approaches of researchers from other countries (Pirchegger and Wagenhofer, 1999; Craven and Marston, 1999) and the availability of information about listed Croatian companies, the author decided on three variables for the measurement of size: assets, revenue and equity. Table 4 contains information about the size of two groups of companies. In the first is a set of 20 companies that do use financial reporting on the Internet, and in the second is a set of 18 companies that have no such practice.

*Table 4 Financial reporting on the Internet and the size of joint stock companies
(in million kuna)*

		Financial reporting on the Internet yes (n=20)	no (n=18)
Arithmetical mean of the size variable ^a	Assets	7.09	0.84
	Revenue	1.32	0.37
	Equity	1.39	0.51

^a All three variables of magnitude are taken from the financial report for 2003

Table 4 figures show a positive correlation between the decision to present financial reports on the Internet and the mean size of the companies from the basic set. Formal statistical testing of the difference of the arithmetical means for two segments of the companies from the basic set is not pertinent since the companies in the basic group were not selected randomly but according to the criterion of the existence of a *technical analysis evaluation*. However, according to all three indicators of size, it appears beyond any doubt that companies that do employ financial reporting on the Internet have much larger mean values.

Since many Croatian companies are in the process of restructuring, financial reporting on the Internet is for them at the moment perhaps a subsidiary activity that requires the unnecessary commitment of staff and generates needless costs. In this context, the link between company profitability and the decision to publish or not publish financial reports on the Internet might be examined. The profitability of companies is measured by the three following indicators: return on assets (ROA), return on equity (ROE) and return on sales (ROS). The values of the arithmetical means for the indicators of the profitability of the joint stock companies are shown in Table 5.

Table 5 Financial reporting and the profitability of companies

		Financial reporting on the Internet	
		yes (n=20)	no (n=18)
Arithmetical mean of profitability variable ^a	ROA ^b	2.70	1.93
	ROE ^c	6.70	5.10
	ROS ^d	9.22	7.20

^a All three profitability variables are calculated from the financial reports for 2003

^b Return on assets, ROA, is calculated as ratio of after-tax profits and total assets

^c Return on equity, ROE, is calculated as the ratio of after-tax profits and total equity

^d Return on sales, ROS, is calculated as the ratio of after-tax profits and total sales income

From the mean values of all three indicators, it can be seen that companies that do use Internet financial reporting have a greater level of profitability than companies that do not have such a practice.

The particular feature of companies from the basic set is the fact that a large number of them belong to the category of the so-called public joint stock companies, that according to legislation of 2002 were forced to list their shares on the stock exchange. In such companies there is probably no great interest in Internet financial reporting, because their appearance on the stock exchange anyway was not free but coerced. This might in particular hold for those firms which are less often traded on the bourses. There is lower investor interest in financial reports and smaller external stimulus to great transparency of operations in such firms. In this context, then, it might be expected that firms that use Internet reporting register greater activity of their shares on the stock exchange. The activity of a share on the exchange can be measured via several indicators, but because of the accessibility of data, the following were selected: market capitalisation, percentage of market capitalisation, amount of annual sales, number of shares sold, and the ratio between shares sold and shares issued.

Table 6 Financial reporting on the Internet and the stock exchange activity of shares

		Financial reporting on the Internet	
		yes (n=20)	no (n=18)
Arithmetical mean of the stock exchange activity variable ^a	Market capitalisation (thousand kuna)	1 508 893	372 664
	Market capitalisation (%)	4.09	1.01
	Amount of sales (thousand kuna)	87 029	11 982
	Number of shares sold	186 712	95 474
	Ratio of shares issued / sold	9.05	6.32

^a Market capitalisation was calculated on the basis of concluding price as of October 15 2004. The percentage of market capitalisation was calculated as the ratio of market capitalisation and total capitalisation for 38 firms from the basic set. The amount of the sales, the number of sold and issued shares were obtained from data of the Zagreb and Varaždin bourses for the period October 5 2003 – October 15 2004.

Data in Table 6 show that the shares of companies that use financial reporting on the Internet are more active on the stock exchanges than the shares of companies that have no such practice. Thus, for example, the average percentage of market capitalisation for companies that publish financial reports on the Internet is four times greater than that of firms that do not.

Through an analysis of the activities of the companies from the basic set, it was easy to discern that the companies that belonged to the financial institutions sector (banks and insurance companies) use financial reporting on the Internet with above average frequency. In this case a formal hypothesis can be constructed that can be tested out with a non-parametric Chi-square test (Rozga, 2003). Since this test shows the probability of the correlation of variables, it is assumed that there is a statistically significant correlation between joint stock companies from the financial sector and financial reporting on the Internet.

The variables and the figures necessary for the calculation of the Chi-square test are given in Table 7.

Table 7 Correlation of financial institutions and financial reporting on the Internet

		Financial institution	
		no	yes
Financial reporting	no	58.1% (18)	0% (0)
on the Internet	yes	41.9% (13)	100% (7)

Since it is a fairly small number of companies that is concerned here, two cells in the calculation of expected frequency were smaller than 5, and the Yates correction (Petz, 1997) was required. After the correction Pearson's Chi-square of 5.56 was calculated, which gives a significance of 0.0183. Since the calculated significance is lower than 0.05, the hypothesis concerning the correlation of financial institutions and the use of Internet financial reporting can be accepted.

In addition, the figures collected showed that corporate entities in the tourist trade sector (hotel and tourist agency firms) use financial reporting on the Internet below the average level, and a hypothesis was erected that there is a statistically significant correlation between companies in the tourist trade sector and the failure to use Internet financial reporting.

The variables and the data necessary to prove this hypothesis and for the calculation of the Chi-square are shown in Table 8.

Table 8 Correlation between tourist industry and non-reporting on the Internet

		Tourist institution	
		no	yes
Financial reporting	no	34.5% (10)	88.9% (8)
not on Internet	yes	65.5% (19)	11.1% (1)

The figures from Table 8 show that of the 9 companies from the tourist trade sector, only one used Internet reporting, and the other 8 had no such practice. Since two cells again had a predicted frequency of lower than 5, the Yates correction was needed once more. The calculated Pearson Chi-square came to 6.13, which provides a significance of 0.0134. Since it was once again below 0.05, the proposition that the tourist sector had no propensity for financial reporting on the Internet may be accepted.

6 Conclusions and recommendations

What is the overall position of listed Croatian companies with respect to financial reporting on the Internet? The results of empirical research show that all of the 38 joint stock companies from the basic set did have Internet sites, but only 20 of them (53.6%) had the practice of using the Internet to publish their financial reports. This is much lower than in Sweden, Germany, Austria and the UK. Complete annual reports are presented to the public via the Internet by only 15 firms (39.4%), and mainly in PDF format at that. A format that enabled direct calculation (EXCEL) was established in only two firms, while only four firms published quarterly and half-yearly reports. Thus with respect to the level of financial reporting on the Internet actually attained, it can be concluded that Croatian companies that are quoted on the stock exchanges have started using the Internet for financial reporting. At the same time, there are many opportunities for the improvement of existing practice by the publication of a broader set of reports, by the publication of quarterly and half-yearly reports, the use of formats that enable calculations and the publication of useful price-sensitive non-financial information.

Financial institutions quoted on the stock exchanges do show a high level of financial reporting on the Internet, as do large companies such as Pliva, Podravka and Kras. The opposite conclusion may be drawn with respect to firms from the tourist trade sector, in which Internet financial reporting is fairly rare. There may be several reasons for this, from the fact that a large number of such firms are in the process of restructuring, via the low level of corporate governance and being forced to be listed on the exchanges to the personal interests of the management. However, if Croatian joint stock companies that are quoted on the bourses wish to have active shares or finance their operations on the stock exchanges in the future, then the transparency of business operations must be increased, and adequate information must be supplied to investors and creditors. Bearing in mind the expected rise in GDP and the resultant rise in the demand for shares, with the forecast growth in the number of Internet users, investment in financial reporting on the Internet should be an investment that will pay off. Financial reporting on the Internet is also a reflection of transparency in business operations and of the standards of corporate governance achieved, which is quite high in the best Croatian joint stock companies, and should be a guideline for all other companies quoted on the stock exchanges.

The legislative framework for financial reporting for listed companies in Croatia is quite well organised, although there is room for improvement. In fact, more extensive demands for Internet reporting could improve existing legislation and give better information to existing and potential investors. That is, the Securities Commission already has a public information booklet available on the Internet set up, but this comes down to the

basic financial reports. Analyses of market, competition, current and planned operations that have been produced by the managements of the firms are too short and in their current form are of little help to investors. A big shortcoming of the public information booklet is the non-publication of accounting policies and the notes, and information about the segments of operations according to IAS 14. An improvement of information from the public information booklet might derive from the requirements for a broader scope of published information that is otherwise presented in the printed version of the annual reports. The managing boards of joint stock companies should describe at greater length their previous operations, their performance and the basic factors that have brought about performance better or worse than that planned. Apart from this, an analysis of the market, the competition, new products, exchange rate and other risks might in the future provide very useful information to investors and improve their investment decisions.

Finally some restrictions that have considerably determined the scope, direction and quality of this research should be mentioned. According to the references available about academic research in other countries, it can be seen that all research was carried out on joint stock companies that are quoted on the stock exchanges. In Croatia, there are more than 200 companies quoted on the stock exchanges, but only a small number of them have shares that are actively traded. There is no realistic demand for financial and non-financial information about inactive shares, and such companies were excluded from this research. This kind of approach to the definition of the basic set resulted in a fairly small sample of 38, and a statistical methodology that could not be more qualitative than descriptive statistics and a non-parametric Chi-square test.

However, it can be expected that in the next few years the number of firms with actively traded shares on the Croatian stock exchanges will be greater, and it will be possible to make a better analysis of Internet financial reporting. In this context, the present investigation can be understood as a point of departure that in the next few years can be used as a basis for comparison and conclusions about whether the companies in Croatia have upgraded the transparency of their operations by introducing Internet financial reporting or not. Any future research might also consider a wider group of variables capable of affecting financial reporting on the Internet (for example, ownership, quality of auditing, the industry, profitability and activity of the shares on the stock exchange). Apart from this, it would be useful to find out whether better Internet reporting leads to better investor informedness and more effective functioning of the capital market in Croatia.

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